The Hungarian Technology Foresight Programme

EDUCATION AND HUMAN RESOURCES

Panel Report

BUDAPEST

2000

MEMBERS OF THE PANEL

Dóra Vámos

Chairwoman of the panel

András Semjén

Secretary of the panel

Árpád Balogh

Gyula Barosán

Csaba Bánfalvy

András Benedek

Katalin Forray R.

Ágnes Rácz, Gyarmatiné

István Harcsa

Zoltán Hermann

Ildikó Hrubos

Lászlóné Kiss

Judit Lannert

Péter Lukács

Ilona Maár, Mádlné

Géza Molnár

Katalin Papp

Gábor Péteri

József Réffy

Ferenc Rolek

Zsófia Szép

János Szilágyi

Júlia Varga

Vilmos Vass

In 1998 the National Committee for Technological Development (OMFB) launched a technology foresight programme named TEP after its Hungarian acronym. The main objective of the programme was to make a contribution to improving the long-term competitiveness of the country's economy. This would enable new opportunities to be identified in the development of both the market and technology that would improve the quality of life of the population. By analysing major changes in the economy and society as well as new achievements in science and technology, TEP defines the key issues and the areas where strategic decisions need to be made that will be crucial for the country's development in the next 15-25 years.

The Steering Group and the thematic panels have assessed the current situation, outlined different scenarios for the future, and formulated their recommendations to implement the favoured approach.

The thematic panels analysed the key aspects of the following, closely interrelated areas:

- Human resources (education and employment)
- Health and life sciences
- Information technology, telecommunications and the media
- Protection and development of the natural and built environment
- Manufacturing and business processes
- Agribusiness and food industry
- Transport

The TEP reports, analyses and findings of the Delphi survey may be accessed electronically via the home page of the Hungarian Ministry of Education at the following website address: http://www.om.hu.

MINISTRY OF EDUCATION OF THE REPUBLIC OF HUNGARY

Published by TEP, the Hungarian Technology Foresight Programme
Publisher-in-chief: Ferenc Kováts - Chairman of the Steering Group of TEP
Published by the Hungarian Technology Foresight Programme (TEP)

ISBN 963 00 5362 4

Table of Contents

Introduction

During its nearly two-year period of activity the TEP human resources panel focused its attention primarily on education and its impacts on society and the labour market. Its main objective was to outline appropriate options (scenarios) for the foreseeable future, based on a precise and fresh analysis of the present situation. The formulation and discussion of these scenarios should enable us to choose the one that may ensure favourable conditions (as far as human resources are concerned) for the development of the country.

Obviously, our primarily future-oriented view has had its consequences on the assessment of the present situation and our analysis affords greater emphasis to those factors and trends that are crucial for future development. In the course of the work to formulate our scenarios, the main trends in school reforms taking place in developed countries and the main directions of domestic professional, pedagogical endeavours were taken into consideration together with some 'realistic' constraints imposed upon our options by the scarcity of resources and the present situation. Finally our recommendations concentrate on the road leading to the scenario the panel considered most desirable for the country as well as on the economic, social and political conditions that are instrumental to achieve the future outlined in this scenario.

The Present Situation of Education and Human Resources in Hungary

The level of economic development, educational achievement and educational expenditures

The Hungarian education system faced serious challenges and underwent significant changes in the 1990s. It goes without saying that the state of human resources and education and the way in which educational develops are influenced by certain external factors such as the present state of the economy and society and the economic development path of the country. Other factors including demographic processes (the reproduction of the population) and the level of educational attainment of the population also seem to play an important role.

The proportion of GDP spent on education in Hungary (estimated at 5.7 per cent in 1995 both by budget experts and OECD statistics) does not appear low *per se*. This statement certainly holds until the mid-1990s. However, its proportion of Hungarian GDP in 1995 fell somewhat below the OECD average, not to mention the data of such countries (with high education spending) such as Denmark, Finland, Israel or Sweden. Since then the situation has scarcely improved in this respect.

Table 1

The level of economic development, educational achievement of the population and enrolment in international comparison, 1996

Country	GDP per capita (USD)*	Percentage of population with at least upper secondary education, age 25–34**	Participation in formal education, percentage, 5–29 year-olds***	Vocational students as a percentage of all upper secondary school students
Belgium	21 104	70	70.8	68
Denmark	21 454	74	63.9	53
France	19 908	74	64.5	54
Germany	20 509	86	61.8	76
Ireland	17 201	66	64.9	20
Italy	19 460	52	53.8	72
Portugal	12 457	32	62	26
Spain	14 317	50	63	39
Austria	20 612	82	58	76
Norway	22 743	91	65.4	58
Switzerland	24 983	87	59.5	69
Mean***	19 374	72	63.5	56.4
Hungary	6 845	80	56.6	68
Hungary/mean	0.35	1.1	0.89	1.21

* In US dollars according to purchasing power parity (PPP).
** General upper secondary education and vocational upper secondary education together in every country.
*** Simple arithmetic mean.
Source: based on Education at a Glance, *OECD*, Paris, 1998 data

Although the government undoubtedly plays a dominant role in education in Hungary, the ratio of private education expenditure to GDP is not insignificant. (It was already at quite a substantial level in 1995.) Budgetary spending on education in 1997 amounted to 365 609 million HUF. 73 per cent of this amount was spent on pre-school and school education[1] and nearly 97 per cent of the general government spending on non-tertiary education was actually spent by municipalities and counties. At the same time the share of GDP spent on public subsidies or grants to primary and secondary education fell to 2.5 per cent from 4 per cent during the 1990–1997 period. *This decrease seems far too significant to be explained by the decline of the relevant cohorts*[2].

The nominal growth of public spending on non-tertiary education was able to more or less keep up with inflation between 1991 and 1994 in spite of the general tendency of fiscal policy towards cuts in public expenditure. In 1995, however, there was a marked change in this trend: local government expenditure could no longer keep up with inflation, the education spending of local governments grew by only 9 per cent in 1995

[1] Kindergarten, primary and secondary education. The Hungarian term covering all these ('közoktatás') would literally mean 'public education' and seems to be somewhat misleading in English; perhaps non-tertiary education is a viable and shorter alternative.
[2] School population (or more precisely the size of the 5-19 age group) fell only by 12 per cent during the same period.

and by 11 per cent in 1996 (well below relevant inflation rates). As a consequence, *the real value of budgetary spending on non-tertiary education suffered a significant decrease both in 1995 and 1996.*

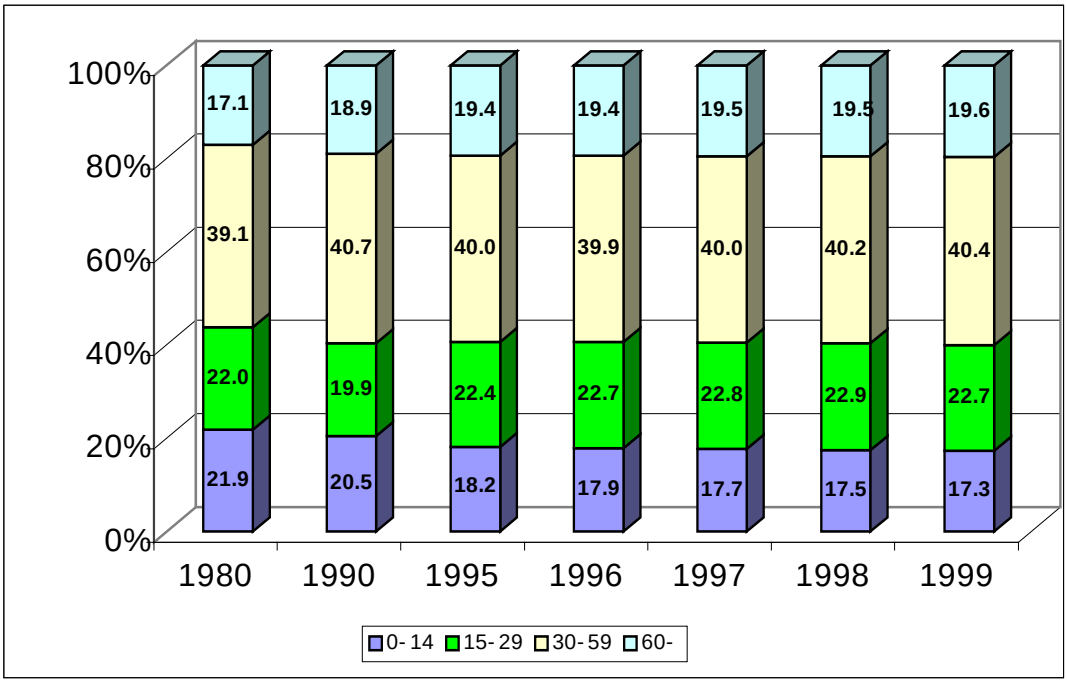
External factors: demographic constraints, labour market and social environment

Demographic situation

Beyond the economic situation of the country and the level of educational spending the size of the school population plays an equally important role in determining the situation in education. Demographic trends have shown a lasting decline in this respect for some time. This trend may only be reversed if the living standards and conditions of families with children improve and a parallel positive change occurs in the social attitudes towards family and child-raising. International migration may also contribute to a positive change in population numbers, immigration being expected to exceed emigration.

Hungarian society has shown an ageing tendency during the last two decades *(Figure 1).* While the proportion of the 15–59 age group in the population remained more or less stable during this period, the share of 0–14 year-olds showed a significant decrease (amounting to nearly 5 percentage points), and the share of those above 60 increased somewhat. If these demographic trends persist until 2020, the share of the 60+ age group may grow to 26 per cent from its present level (nearly 20 per cent) and the share of the young population may also fall significantly at the same time.

Figure 1: Age structure of population (on January 1, 1980-1999)



Source: based on CSO Statistical Yearbooks data

As a consequence of these demographic trends there have been fast and frantic changes in school population numbers in primary, secondary and tertiary education. The decrease in the 5–9 population was especially significant between 1981 and 1990 whilst there was a marked increase in the 20–24 age group between 1990 and 1999. The main reason behind these oscillating age group figures is that the demographic 'low tide' of the beginning of the sixties was followed in the mid-seventies by a sizeable baby-boom resulting in relatively large cohorts. However, the demographic peak has already left the education system: primary and lower secondary education was already facing declining student numbers in the 1980s and since 1993 upper secondary schools also have experienced the problem of smaller cohorts and declining enrolments.

Trends on the labour market

The share of those in the economically active age group of the population has not declined markedly. Labour market participation, however, experienced a parallel drastic decline partly due to the increasing length of schooling and partly due to some other factors characteristic of the 'transitory recession'. The decline in labour market participation was especially significant during the last 10-12 years amounting to more than 10 percentage points during the seven year-period between 1992 and 1998. Employment fell from its 1988 level (5 318 thousand) to 3 698 thousand by 1998. This means that some 30 per cent of jobs have vanished during these eleven years.

Table 2

Economic activity and unemployment in Hungary (thousands of persons)

Economic activity	1992	1993	1994	1995	1996	1997	1998
Economically active population, age 15–74	**4776.7**	**4596.0**	**4202.7**	**4095.3**	**4048.2**	**3995.1**	**4010.7**
Of which							
Gainfully employed	4332.5	4077.1	3751.5	3678.8	3648.1	3646.3	3697.7
Unemployed	444.2	518.9	451.2	416.5	400.1	348.8	313
Inactive population, age 15–74	**2952.2**	**3167.3**	**3576.9**	**3724.2**	**3759.8**	**3804.9**	**3745.1**
Of which							
Discouraged (in passive unemployment)	153.0	115.6	107.9	106.7	101.8	94.7	110.4
Labour market participation rate (per cent)	61.8	59.2	54	52.4	51.8	51.2	51.7
Unemployment rate (per cent)	**9.3**	**11.3**	**10.7**	**10.2**	**9.9**	**8.7**	**7.8**

Source*:* based on CSO Statistical Yearbooks data

The decrease in employment did not affect the various sectors of the economy in the same way. The loss of jobs was the strongest in agriculture and mining, it was somewhat less pronounced in manufacturing and electricity and there was a parallel increase in employment in the services sector. As a result of these processes the structure of employment by main economic sectors (industry: 31 per cent, agriculture: 8 per cent, services: 61 per cent) is approaching the employment structure characteristic of developed countries.

The unemployment rate, having skyrocketed to over 13 per cent shortly after the start of transition, began to drop as early as in 1994 and from 1996 onwards it has stayed constantly below 10 per cent, also showing a decreasing trend. Some groups were hit especially hard by unemployment, the most vulnerable groups being the young and those with a low educational achievement. Beside these patterns a strong regional and sectoral concentration of unemployment may also be observed (namely in the north-western region and in heavy industry). The rate of youth unemployment is 15.9 per cent, which cannot be considered low. However it is far below the relevant figures of many other developed OECD countries.

These days the new jobs are not only compensating for those that are disappearing, as a net gain in employment is also apparent. The need for qualified manual workers continues to be significant (46 per cent of vacancies in 1993 and 46.5 per cent in 1998 were in jobs that required vocational qualifications). However, in spite of the great number of the unemployed searching for jobs, a considerable portion of vacancies remain unfilled even in the longer term, indicating structural unemployment. The reasons behind this fact may be numerous including a high level of structural discrepancies between the qualifications, skills and work culture of the long-term unemployed and the requirements of the newly emerging jobs.

Changes in the social environment of education

During the 1990s Hungarian society has undergone a serious *polarisation*. Income differences between social strata have widened and the gaps between village and city, the qualified and the unqualified, the employed and the unemployed have increased considerably. The increase in child poverty and the strong correlation between a household's position in the distribution of income and the schooling prospects of the child/children in this household cause particular concern.

In the lowest two deciles of Hungarian households (according to per capita income) the average number of school children studying in the 1-8 grades per household is nearly six times higher than in the top two deciles. As a consequence of this, more than 40 per cent of school children in the 1-8 grades live in the two bottom income deciles of households. The correlation between the household's place in the income distribution and the child's schooling prospects results in an unsatisfactory level of social mobility as the chances of children from poor families reaching secondary or higher education are well below those of children from better-off families. The distribution of expenditures on private education is even more alarming: educational spending in the top two deciles of households with dependant children is more than four times higher than in the poorest quintile.

Important Changes in Hungarian Primary and Secondary Education

The remarkable social and economic changes in the 1990s have inevitably left their mark on primary and secondary education. Compared to the previous situation, which was characterised by almost complete state ownership of educational institutions, the *property structure* in primary and secondary education has become *multi-sectoral*. Most primary and secondary schools have been transferred to municipal property and church schools or other private (foundation) schools also have acquired a considerable role in

the education sector. 1 per cent of schools offering some kind of vocational training are maintained by enterprises, local or regional governments maintain 85 per cent, with foundations, churches or other institutions maintaining the rest. Today more than *2,400 local governments* operate local educational services, maintain schools or other educational institutions. However, specialised local educational administration with proper qualifications to perform its tasks can only be found in larger towns and cities. In smaller municipalities the same administrative unit tends to be responsible for education, healthcare and other public services. In summary we can say that local school administration often lacks properly qualified specialists or professionals. As a consequence of this, schools and teachers have to a great extent become professionally independent.

Both the *vertical and the horizontal structures* of the school system have changed. The previous clear (institutional) boundaries between primary and secondary education have loosened or become indistinct and an increasing number of the under-14 age group are enrolled in lower secondary programmes leading to a *leaving certificate* (*érettségi:* the Hungarian equivalent of GCSE). Vocational training provided by the school system has also undergone significant changes. Demand for the traditional vocational programmes of these schools has diminished and as a consequence of falling enrolment and student numbers their capacity utilisation has deteriorated. As a result of these processes, the programme range offered by traditional vocational schools has been diversified to a great extent and many vocational schools have started to offer general upper secondary programmes or vocational secondary school programmes leading to a *leaving certificate*.

The expansion of 'full' secondary education[3] in terms of the unexpectedly rapid increase in secondary school enrolment ratios started in the second half of the 1980s. In the mid-1990s two-thirds of students entering (upper) secondary education enrolled in secondary schools. A quarter of the cohort entered the general secondary programme whilst about a third entered some vocational secondary programme. In 1998 already 68.7 per cent of those leaving the 8-year primary school were entering secondary schools and starting a programme that leads to a leaving certificate. An important reason behind the expansion of secondary schools is that demographic trends and school finance mechanisms force schools to compete for students, a kind of competition that has gained in importance in recent years. The other main reason for this is the decline of traditional vocational training. Consequently parents, local authorities and the training institutions themselves have all moved away from this and turned towards secondary school programmes leading to a leaving certificate.

Changes in the legal framework of education may be interpreted as legislative reactions to challenges brought about by the partly *spontaneous* transformation of the education system provoked by social demands and needs. The emerging diversity in the range of institutions and programmes and the relatively fuzzy structure of the school system (opposed to the much stricter former one) has brought about many new challenges. As a

[3] General secondary and vocational secondary programmes leading to *matriculation* (as opposed to three year traditional vocational programmes).

consequence there has been an increasing need for the regulation of curricula to ensure uniform national standards within the system. Issues related to core and frame curricula, content regulation, output control and a national examination system have gained increasingly in importance and have come into the spotlight of education policy. This transformation is not yet complete, the new system is still in the making and it is still relatively unsettled and uncertain.

Education funding and efficiency

General government spending on primary and secondary education in 2000 amounted to almost 300 billion HUF, approximately 100 billion of which was spent on school-based vocational training.

There are two separate levels or sub-systems of Hungarian school funding: one is constituted by the budgetary links between the central budget and the institutions that maintain schools (e.g. local governments, churches) and the other covers the budgetary links between school maintainers and the education institutions themselves. There is a considerable difference between the rules governing these two levels. The government provides block grants to maintainers: these are not earmarked and their size is determined by formulae. In addition to these there are also some earmarked educational grants or subsidies to facilitate their provision. Maintainers may also top up these grants and spend more on education using their extrabudgetary revenues. As a result there is a considerable disparity between the funds available to finance education at the level of institutions in accordance with the financial potential of their maintainers (local authorities in most cases) and the economic situation of the municipality to which the institutions belong.

The last decade saw the collapse of the former system of apprenticeship, which offered on-the-job training at enterprise level for vocational school students. A great part of enterprise-based training places have disappeared, partly because some of the companies that had provided such training places in the past recently went out of business, and partly because of the emerging inadequacy of incentives to motivate employers to offer such places. Efforts to solve this problem have had limited success so far. The involvement or the active role of employers (economic organisations) in the provision of vocational training may be facilitated by various factors, amongst others financial regulations and incentives, including tax credits for the participating employers. A further source of motivation in the provision of such training could be the direct interest of enterprises in their own human resource development and their need for employees who have benefited from an apprenticeship based on the enterprise's own technical equipment and technology. Multinational companies and other major companies show some characteristic differences from medium-size or smaller enterprises in respect of their participation and motivation in vocational training. Large companies tend to have their own training policy and often rely on international training systems and standards.

In more developed countries there has been a long tradition of analysing the costs of education and the enhancement of institutional (or X-) efficiency has for long time been a high priority in the various school funding reforms. In Hungary, however, the quest for economic efficiency only started much later and even then in a vague and compromised way.

Although student numbers in the primary school (or 'general school') decreased by more than 300 000 in the last decade, the number of teachers and other employees did not follow a similar pattern. Paradoxically it even increased for some time. As a result of these processes student/teacher ratios in Hungary were well below the relevant OECD figures in all three levels of education. Decreasing student numbers have not led to a parallel decrease in the number of schools and this problem is also contributing to the relatively high costs and low efficiency in Hungarian education. Even the very small municipalities, regardless of the size of their population and the number of school-aged children living there, consider the provision of a compulsory general education an important local task and try to achieve a complete a coverage as possible.

Teachers

The teaching profession has a long history of being underpaid in Hungary and it cannot offer lucrative career prospects. In developed countries the average annual salaries of teachers amount to 103-172 per cent of per capita GDP. In Hungary this amounts to only 68 per cent of GDP in the case of primary school teachers and 72 per cent of GDP for upper secondary school teachers. On the other hand, the labour market situation of teachers is relatively stable as only 2-3 per cent have been sacked and became unemployed in recent years.

The possession by teachers of up-to-date skills and knowledge is of key importance in determining our future. Their familiarity with and attitude to the new information technology tools are of outstanding significance. In the mid-1990s less than half of teachers were able to use a computer and the average level of their computer skills was relatively low. Gender and age differences in the level of computer literacy are no less pronounced amongst teachers than in general.[4]

The faster diffusion of the use of computers in the classroom is hindered not only by a lack of conditions (i.e. the low number of computers) but also by the relative unfamiliarity of Hungarian teachers with teaching methods based on student activity, independent or group work. By the end of the decade teachers' attitudes to computers has improved somewhat compared to the mid-1990s however the majority of teachers still have a 'let's wait and see' attitude. A wide range of computer science and Internet training courses offered for teachers also enhanced the beneficial effects of the government's Secondary School Internet Project. According to a representative survey conducted in late 1998, 56.3 per cent of teachers took part at least once in some kind of computer training course. Training costs were fully (for 50 per cent of the participants) or partly (for another 30 per cent) borne by the schools employing the participating teachers.

Renewal and diversification

There have been remarkable changes in the content of education and the inner world of

[4] When assessing the level of computer literacy of teachers one should not forget the accessibility of computers (only one third of teachers had regular access to computers at school and about a quarter had an access at home).

schools in the recent past. The school structure and curricula have diversified considerably as a response to the differentiation of individual learning needs. This calls for a general national regulation of educational levels, programmes and qualifications that may ensure flexibility, the responsiveness of education to social needs and an inner mobility within the school system. Preserving the basic social goals of education and the role of the education system in strengthening social cohesion in the face of the diversification and differentiation of education should also be high on the agenda.

To meet these challenges a unified but flexible regulation of education content had to be created. The new *national curriculum* (NAT), enacted in the autumn of 1995, was expected to meet the above requirements and tackle these problems. It is understood that the definition of certain unified measurement points and the introduction of a unified external measurement (testing) system of educational achievements both appear instrumental in the implementation of such a national curriculum. However, this process seems to be lengthy and subject to a meandering course.

A serious problem of the Hungarian education system is the lack or underdevelopment of institutionalised quality assurance mechanisms. To create a properly functioning, reliable and reasonably objective evaluation system within our decentralised model of education administration is a real challenge. However this effort may not be spared as a successful evaluation system is of key importance for the future.

Higher Education in the Nineties

The 1990s brought about fast and important changes for Hungarian higher education, including the creation of the legal framework of a modern higher education system, a rapid expansion (of student numbers and enrolment rates) and the transformation of higher education institutions. In developed countries similar continuous processes had already commenced three decades ago and there is sufficient experience from which to draw conclusions.

Hungary, in harmony with some international trends, also built up corporatist structures and established professional interest organisations in higher education. Boards of higher education leaders, namely the so-called University Rectors' Conference and its college counterpart, the General Directors' Conference, have played an important role in higher education policy formation. The 1993 Act on Higher Education delegated serious administrative or professional tasks to some newly established organisations, i.e. the Higher Education and Research Council (FTT) and the Hungarian Accreditation Committee (MAB). These have had a considerable say in determining the enrolment structure, quality assurance, the licensing of new degree subjects and new HE institutions.

The expansion of higher education in Hungary

The transformation of the higher education system in Hungary showed many similarities to the processes previously observed in developed countries whilst also having some idiosyncratic characteristics. It took a striking deviation from international trends in that it took place in an economy that was undergoing a temporary shrinkage due to the transitory recession whilst the higher education expansion in developed countries

occurred in years of economic prosperity with a high level of budget subsidies to higher education.

Due to these circumstances the problems of HE expansion, which usually arise over a longer time span in line with developed countries, occurred simultaneously and in a more pronounced way in Hungary. Due to a relative scarcity of financial resources and the temporary tightening of fiscal policy economic efficiency has become an overriding concern of HE policy. There has also been a parallel increase in the general concern about the deteriorating of the quality of higher education.

In the 1990-1998 period higher education student numbers increased by 2.5 times per annum in spite of the shrinking size of the relevant cohorts observed from the second half of the decade.[5] The real value decrease of government grants forced HE institutions to enrol part-time students to an increasing degree in order to obtain extra revenues. As a result of this the previously wide gap between Hungary and the OECD average in HE enrolment rates has narrowed considerably.

The transition from the training of a select élite to mass higher education has obviously had some consequences on the structure of the students. The adaptation of HE institutions to changing social needs is a slow process and some frictions in its course appear to be unavoidable.

Dimensions and characteristics of structural change in higher education

The above mentioned higher education expansion could not have taken place without a significant restructuring of higher education and its output. Expansion on the one hand meant growing student numbers in already existing HE institutions and on the other hand it required the foundation of *new institutions* of higher learning. The emergence of new HE institutions was primarily a consequence of the booming non-state sector in higher education, namely non-profit organisations, foundation schools (mostly private colleges) and new education businesses as well as the emerging and quickly expanding church (denominational) sector in Hungarian higher education. The new private institutions were quick to adapt to market demand and they primarily offered relatively low-cost degree courses that also appeared to have good labour market prospects. Non-state higher education is now able to accommodate approximately 8-10 per cent of students.

Due to budgetary pressures revenue-oriented training programs and the intake of fee-paying students (paying for the costs of tuition) gained increasing importance in the state sector. These developments, parallel to the expansion of private higher education (mostly funded by tuition fees) *strengthened the role of private resources in higher education funding.* Nominal tuition fees were also introduced for state-funded study places however these were rather short-lived and were not able to prevail. In the longer term, however, the role of private resources in higher education finance is likely to increase further. OECD data indicates that in 1994 the proportion of private expenditure in Hungarian higher education was 16.9 per cent with households (families) bearing

[5] Full time student numbers more than doubled (2.2 times) while the number of state-funded students showed a 1.9 times increase.

11.3 per cent of the financial burden. These data roughly correspond to the French ones (16.6 per cent and 12.7 per cent respectively), and are not too far from the OECD-average (20.2 and 15.6 per cent). These also suggest a mixed funding regime although state funding still dominates in Hungarian higher education.

A characteristic feature of Hungarian higher education *expansion* was that it primarily *took place in the relatively lengthy* degree courses and *programmes*. However, student numbers in *'college-level' courses* (leading to a Hungarian version of bachelor degrees) *grew faster* than those in full-length university courses (approximately equivalent to master courses). *Post-secondary programmes* (the so called 'accredited school-based tertiary vocational courses') were established, but their share in total student intake has to date remained insignificant.

The structure of full-time students by main study fields has not changed rapidly enough since 1990 and in some cases the direction of the structural change did not reflect the expressed intentions of higher education policy: e.g. the share of technical and agricultural students (high enough already in 1990 by international standards) even increased somewhat by 1997. The proportion of students specialising in law, public administration, economics or business only reached 14.1 per cent in 1990 and by 1997 they accounted for a still relatively low 17.1 per cent of the total student number. The proportion of students enrolled in various teacher training courses (including courses for primary and lower secondary school teachers, kindergarten teachers and teachers for students with special educational needs, courses in physical education, etc.) shrank considerably between 1990 and 1997 (from 22.9 per cent to 15.9 per cent) in accordance with government intentions and student demand.

Since 1993 the right of establishing *doctoral (PhD. D.) programmes* and awarding doctoral degrees has again rested with universities. Currently Ph.D. students account for approximately 4 per cent of the total number of students within higher education. This share is rather low in international comparison and may be partly explained by the fact that the Hungarian labour market does not reward doctoral degrees unless the holder works in the poorly paid academic/higher education sector.

In the second part of the nineties more than 60 per cent of all scholarly workers and some 70 per cent of those with at least a doctoral degree (PhD. D.) were employed in the higher education sector.

Educational expenditure: improving efficiency or diminishing government grants?

In the face of the significant increase in student numbers the size of teaching staff remained practically unchanged. This led to a more than twofold (2.3 times) increase in the student-teacher ratio (in 1998 it amounted to 14.2). In spite of such developments there seems to be considerable room to further improve economic efficiency in Hungarian higher education.[6]

---

[6] Teaching duty is relatively low, group sizes seem to be inefficiently small, administration is often unprofessional. There is also a 'fragmented' institutional structure, i.e. there are too many and too small HE institutions, institutions often have branches that are located inefficiently far from each other, premises often fit their function poorly, are obsolete or in bad shape (not properly maintained). These factors lead *(A lábjegyzet a következő oldalon folytatódik.)*

There was a significant decrease in the *real value of government grants* to higher education, falling by a quarter between 1990 and 1998. Owing to expanding enrolments, the *real value of public funding per student shrank at a dramatic rate*. (In 1998 the real value of per student government funding amounted to only 40 per cent of its 1990 level.)

Institutional reform

The scattered location pattern of Hungarian higher education is a consequence of processes that have prevailed for decades. At the end of 1998 the institutional network of Hungarian higher education consisted of 89 autonomous institutions (55 public, 28 church and 6 foundation institutions). Beside these there were also some 50-60 affiliated branches or faculties that were not located in the same settlement as their 'mother' institutions. Higher education integration has been permanently on the agenda since the start of the transformation process. Education policy has tried to foster voluntary integration and this seemed to be a relatively slow process although various grants and subsidies were made available for the integrating institutions. The voluntary intentions or the original integration plans of institutions were often at odds with the central goal of creating a more rational institutional network. An amendment of the Act on Higher Education in 1999 made an attempt at harmonising institutional plans or scenarios with central goals thus creating a more rational, logical institutional network and location pattern.

This amendment signalled the start of a rapid, centrally co-ordinated integration that reduced the number of public higher education institutions roughly by half. After the full implementation of this process there will be 17 public (government) universities and 5 church universities in Hungary. The network of colleges (that often had rather narrow specialisations) also faces a significant restructuring and integrated colleges will offer a wider range of courses and will be more diversified. The new, integrated college network covers 13 public, 21 church and 6 private or foundation colleges. In spite of the high number of non-state institutions, the overwhelming majority of students will study in public institutions.

Non-School Education and Training

Labour market training and retraining seem to be fundamental to human resource development. The vocational courses for adults are usually shorter but more intense than school-based vocational training courses. These courses are often based on direct *short-term manpower requirements* and respond to labour market needs.

There is a great potential for employers to assume important direct role in the recurrent training, further education and retraining of their employees. At the beginning of the 1990s labour market administration primarily focused its attention on finding acceptable solutions to the problems brought about by skyrocketing unemployment such as the retraining of the unemployed. As unemployment figures started to fall its attention

---

to high maintenance costs and operational expenses.

moved on towards lifelong learning and continuous education. The need for the continuous renewal of skills and knowledge calls for recurrent training and the economy should provide proper conditions and incentives for this.

The scenarios

Methodology and caveats

Within the time horizon of our foresight we do not expect major *qualitative* changes that would result in a particularly significant reorganisation of society (either in its entirety or in its subsystems) and would therefore outline a new framework for the interpretation of educational development or the assessment of such development. The range of possible scenarios for education is extremely large. The probabilities of the outlined scenarios occurring will actually depend on numerous factors. The future of human resources and education must inevitably reflect the events in other socio-economic fields in the country or how Hungary reacts to changes in the international environment and connects with the rest of the world.

The 'Education and Human Resources' panel defined three complex variables that were used to set the boundaries of educational scenarios:

1. *The relative*[7] *availability of 'efficiency adjusted' budgetary resources for education (RAEABRE)*
This is a complex variable, partly retaining the characteristics of an *activity* variable (the budgetary share of educational spending) and partly those of a *professional* variable (institutional efficiency). This variable essentially combines the effect of the following three factors: *a)* per capita GDP; *b)* the ratio of (central and local) government spending on education to GDP and *c)* the internal efficiency of the educational institutions.

2. *Knowledge-intensity of labour demand*
This variable translates the 'knowledge-intensity axis' of the original macro-scenarios into the language of human resources and education.

3. *The importance of private activities (private initiatives and private sector) in education* (the demand for education from the population and employers and the intensity of their involvement in its financing)
This is also largely an activity variable. To name only some of important factors affecting private education spending would include the 'education awareness' of the population, the social prestige of knowledge, the labour market position of a qualified workforce (recognition of skills and certificates in wages), the diversity of the government supply in education and its adaptability to demand impulses and finally the existence and size of private education supply.

[7] Available amount of *per capita* or *per student* resources.

Even the assumption that each of the above three variables (representing three axes or dimensions) may only have two ‘extreme’ values leads to eight different speculative (theoretically possible but not necessarily feasible) characteristic scenarios.

Scenarios[8]	RAEABRE	Knowledge-intensity of labour demand	Private activities in education
1. Mixed financed[9] knowledge-based HRD[10]	High	High	High
2. HRD with public (government) dominance	High	High	Low
3. Mixed finance 'over-education'	High	Low	High
4. Education as a 'parking lot'	High	Low	Low
5. Privately financed HRD	Low	High	High
6. Lasting knowledge deficit	Low	High	Low
7. Education as high prestige consumption	Low	Low	High
8. HRD 'dinosaur'	Low	Low	Low

Some of the above scenarios may seem unrealistic as they may correspond to combinations of variables that are hardly feasible in reality, are far from being sustainable and do not represent a dynamic equilibrium path (even in the medium term).[11] The panel dropped the unrealistic or undesirable cases and selected four feasible scenarios (Scenarios 1, 2, 4 and 5) for further analysis and consideration.

Before presenting the selected scenarios in greater detail, we can make them rather more realistic with some 'fine tuning'. We can relax the simplifying assumption that each of the above variables may only take two 'extreme' values: in some cases an intermediate value may seem more natural or logical as it better fits the internal relationship between the different variables. An intermediate value can also reflect the names of the scenarios or the 'labels' rather better or it may represent country strategies that fit these labels more precisely. The fine-tuned scenarios, taking these modifications or revisions into account, are described in the following table.

[8] The names of the various visions given here and used hereafter are 'labels' and cannot be interpreted literally: they emphasise a salient feature of the relevant vision and may not always avoid oversimplification. (e.g. 'privately financed HRD' here will refer to 'HRD with a relatively high share of private funding' – no need to say that even in this case many education activities would remain publicly funded.)

[9] Public-private mix.

[10] Human resource development.

[11] In the case of *mixed finance over-education* the high valuation (esteem or assessment) of knowledge both by government and by population would seem unlikely or unrealistic and is certainly hard to justify given the low knowledge-intensity of the growth path. In the '*lasting knowledge deficit'* case the low value rendered to knowledge both by government and the public would certainly contradict the selection of a knowledge-intensive development path as demand for qualified labour would face supply constraints.

Scenarios	RAEABRE	Knowledge-intensity of labour demand	Private activities in education
1. Mixed financed knowledge-based HRD	high	high	medium to high
2. HRD with public (government) dominance	high	high	medium
4. Education as a 'parking lot'	medium to high	medium	low
5. Privately financed HRD	medium	high	high

Model scenarios

General characteristics of the selected four scenarios

The international integration of Hungary and the strengthening of international economic relations influence not only internal processes but also the development of employment and labour market structures and thereby the manpower requirements of the economy. Over the next few years one of the greatest challenges will be the steep rise in the intensity of *international integration* after Hungary's anticipated accession to the EU. The current preparation process has already led to considerable regulatory and economic measures. The accession will lead to further structural changes both in the institutional system and the economy. The four selected scenarios show little difference if any in this regard; all are based on an integration path that includes a quick accession to the EU.

There are certain factors that may be regarded more or less as exogenous given the conditions in short and medium-term education forecasts although in the longer term even these depend on other conditions including the legal and regulatory framework. They include the size of the school-age population (in the short term even student numbers to a certain degree), geographical and social factors, the demographic patterns of the population, economic conditions and the conditions of the educational network. Long-term labour force prognoses provide manpower requirements or needs and forecasts on the future demand of the economy for different qualification levels. Based on these, a considerable surplus of skilled physical labour may be expected to prevail until 2010.

Choosing a knowledge-intensive development path may promise a quick absorption of such a surplus. However it could also bring about a significant increase in the demand for higher education graduates, partly as a result of structural changes after the country's accession to the EU and partly due to the increased social prestige of qualifications. The enhanced employment opportunities (the relatively free internal movement of labour) characteristic of the EU may only be exploited if the labour market value of flexible adaptation increases considerably.

Specific features of the selected scenarios

The following is a brief description of some of the specific features that characterise the four selected individual scenarios. This is also an attempt at a more precise quantification of the variables shaping our scenarios.

(A) MIXED FINANCED KNOWLEDGE-BASED HRD

RAEABRE :	*high (8)*
Knowledge-intensity of labour demand	*high (8–10)*
Private activities in education	*moderately high (7)*

General (primary and secondary) education

Structure	General education increases in duration (10 years) but also becomes more practical in orientation. Private schools gain market share in lower and upper secondary education although only marginally. Costs of internal mobility between different types of schools are borne by the public. New, differentiated teaching methods are applied.
Participation at upper secondary level	The demand for educated labour is high due to the knowledge-intensity of the path; this will trigger an extensive expansion of upper secondary education. Approximately 80-85 per cent of a cohort will obtain the leaving certificate, which is to be differentiated according to standards. Demand for places in élite general upper secondary schools and good vocational secondary schools increases further.
Teachers	The remuneration and prestige of teachers increase. Growing wage differentiation within the profession. More male teachers.
Financing	High share of public grants in financing education. Public funds are also used to finance private schools (through access to central per-student grants for acknowledged schools). Local formula funding and quasi-market methods play an increased role in local school funding. High institutional (or X-) efficiency, an improvement in economies of scale.

Vocational education

Place within the structure	As a result of extended general basic education, job-specific vocational education starts at a later age.
Division of functions between government and the market	Dissemination of vocation-related theoretical knowledge primarily remains within school-based vocational education. Employers play an increased role in skill-oriented (job-related) specific vocational training with the role of the state in this context being primarily restricted to setting up the legal framework.
Financing	Adult education courses partly financed by the individual proliferate (with additional state funding in the form of student loans; company-based on-the-job training courses may be substituted for earmarked company tax payments to the labour market fund). As a result of adequate government incentives, companies are more active in financing the training of their employees. Increasing demand for educated labour owing to the high knowledge-intensity and expanding employment lead to strong company interest in financing employees' further training/education.

Higher education

Access and participation	Higher education admission and participation reaches approximately 50 per cent in the relevant cohorts, primarily through an increase in admission to full-time undergraduate programmes. Potential students are practically free to choose between institutions and degree subjects so their distribution will primarily be determined by the demand for study places.
Structure	Due to changes in the system of admissions (entrance examinations), within the predominantly publicly financed part of higher education the role of elements pointing towards the direction of a linear higher education model increases spontaneously with no central reform of the dual system. About 40 per cent of students admitted to higher education may eventually get a place at 'university level' and have a chance to graduate with a 'university degree' (the Hungarian equivalent of a master's degree). Academic programs leading to a 'full' college (BA, BSc) or university (MA, MSc) degree predominate in spite of the increasing importance of labour market-oriented shorter courses.
Network of institutions	Within the predominantly publicly funded parts of higher education, quasi-market mechanisms in the allocation of student numbers and government funding increases the institutions' incentives to achieve a fuller integration. However, the concentration of the HE network remains relatively low due to the significance of private higher education.
Sectoral proportions	Private higher education is moderately significant; some fifteen per cent of HE students will study in HE institutions belonging to the private sector.
Financing	Government, the market sphere and households are involved in the financing of higher education, the role of the latter two increasing. Yet the share of public (budgetary) resources in HE funding will not fall below two-thirds. Effective tuition fees are reintroduced even in the case of predominantly publicly financed studies. A widely available, government guaranteed system of student loans with preferential interest rates is introduced to enhance access to HE.

(B) HRD WITH PUBLIC (GOVERNMENT) DOMINANCE

RAEABRE :	*high (8)*
Knowledge-intensity of labour demand:	*high (7–8)*
Private activities in education:	*Medium (4–5)*

General (primary and secondary) education

Structure	More limited variety of education supply than in case (A); private sector involvement in general education remains low. Longer general education (extended beyond the age of 16) as a response to higher demand for educated labour due to the knowledge-intensity of the path. Costs of internal mobility between different types of schools are borne by the public.
Participation at upper secondary level	Secondary school enrolment rates increase rapidly primarily due to an increased supply of four-year upper secondary school places and places in comprehensive 12-year schools offering both general education and some vocational education options.
Teachers	Teaching salaries increase although at a lower rate than in the previous scenario. Wage differentiation amongst teachers is limited.

Financing	High share of public resources in the financing of general education. Only limited transfer of public resources into private education. Local governments are to be expected to maintain a wider variety of education supply due to the limited private educational supply.

Vocational education

Place within the structure	Job-specific vocational training starts at an even later age than in the previous scenario but it basically remains within the framework provided by the school system.
Division of functions between government and the market	Excessive reliance on the public sector in job-specific vocational education does not allow for efficient and up-to-date vocational training. Links between vocational education and the labour market are weak and uncommon. Employers' direct demands play a moderate role in determining training supply and content. Labour demand effects on training supply are applied with considerable delay.
Financing	Financing vocational education remains predominantly a government task in this scenario. The direct involvement of the companies in financing will be limited by their restricted opportunities to influence training content. The government-dominated system of funding decreases employers' direct involvement in vocational training and reduces their willingness to finance it.

Higher education

Access and participation	Increasing enrolment rates and absolute increases in student numbers. However due to a relatively lower level of private educational supply and thus the relatively more important role of public sector budget constraints, HE participation does not exceed 45 per cent. Central allocation of study places (*numerus clausus* system) is preserved. Yet within the established corporatist framework the government attempts to shift HE structure to better meet labour market requirements and student needs.
Structure	A mixed system emerges combining some elements of the dual and linear models of HE. There is an increase in the significance of modular elements and linear higher education career paths in several practice-oriented areas. The sharp boundaries between the two 'sectors' (colleges and universities) and an almost exclusive reliance on solutions offered by the dual model prevail in certain prominent (in the academic sense) institutions (élite universities) and in programmes qualifying for certain sectors (e.g. healthcare: see the boundaries between medical and paramedical training/education).
Network of institutions	Initially, centrally directed integration measures often only lead to formal effects. However, integrating institutions gradually realise the inherent advantages of a unified common management, joint market presence and scholarly activities.
Sectoral proportions	The share of private higher education institutions in HE supply stagnates or increases only slightly as a result of tighter constraints on the demand for private HE (due to tightened individual budget constraints). Their role remains similar to that in the previous scenario while the student quality tends to be somewhat lower.
Financing	Tuition fees may be reintroduced (albeit only at a nominal level) within state-funded HE, which is currently free of charge. Students studying in private higher education may also rely on government-subsidised student loans.

(C) EDUCATION AS A 'PARKING LOT'

RAEABRE :	*moderately high (6–7)*
Knowledge-intensity of labour demand:	*medium (4–6)*
Private activities in education:	*Low (3–4)*

General (primary and secondary) education

Structure The extension of general basic education is primarily due to a shift towards cheaper forms of education. Those not aspiring to upper secondary level also tend to stay within the school system until the age of 16. The share of vocational secondary schools in the upper secondary level is lower than in the previous scenarios. Marginal role of private schools. Reliance on frontal teaching, focus on academic knowledge. High drop-out rates in the upper grades, lower standards, diminished quality criteria.

Participation at upper secondary level Enrolment in upper secondary schools increases but at a somewhat lower rate than in the previous scenarios. Pronounced increase in cheaper programs, namely general secondary schools and in those vocational secondary school programmes that only require limited equipment.

Teachers The level of teaching salaries remains significantly lower than in the other three selected scenarios. Low prestige of the teaching profession. These factors lead to recruitment and quality problems.

Financing Mixed central and local government funding predominates. Chronic fight for resources. Under-financing prevails in contrast with the previous two scenarios: cheaper solutions and underpaid work force tend to predominate due to little attention to qualitative elements. Institutional efficiency is relatively low. Low level of public funding to private education.

Vocational education

Place within the structure The acquisition of relevant and marketable vocational skills and qualifications extends to an age exceeding the age of 18 and well beyond the typical age range observed in the other scenarios.

Division of functions between government and the market The role of the economic sphere (employers and employees) or the students in defining training contents is inferior. The government provides an extensive school-based vocational training that remains mostly theoretical and concerns relatively wider groups of vocations.

Financing Financing does not promote cost-effective solutions in vocational education although it does not prevent the labour supply from eventually adapting itself to labour demand, relying primarily on labour market training programmes and further training courses financed partly by employers.

Higher education

Access and participation

A high number of students stay in higher education institutions for a relatively long time in this system. These institutions provide relatively cheap training leading to qualifications with limited value on the labour market. Enrolment rates are similar to those in the previous scenario with the main difference being contained in their internal structure: in this model, the share of students studying in teacher training colleges and faculties of arts is much higher. The government makes no attempt to meet labour market requirements or student demand. Yet the operation of such a system is far from cheap as the high level of forced substitutions leads to frequent corrections and career changes.

Structure

This is a basically linear HE system, allowing even an absolute majority of students to reach university (master's) level. Due to the high incidence of forced substitutions career adjustments at a later stage and horizontal mobility are high.

Network of institutions

Institutional integration is implemented centrally but as the model provides little room for adapting higher education to labour market needs, the internal advantages of this integration are not exploited.

Sectoral proportions

The share of private higher education is even lower than in the precious scenarios but its function changes: it is no longer a pool for less talented students or those from less educated but solvent families; instead, it offers high quality training to a narrow, solvent and élite group while public sector HE institutions tend to offer mass education.

Financing

Tuition fees in the state sector, if there are any, are minimal and undifferentiated. The role of student loans is insignificant; their major function is to compensate for vanishing student benefits. Due to fact that potential students face tight budget constraints the limited supply of preferential loans reduces the demand for élite private institutions.

(D) PRIVATELY FINANCED HRD

RAEABRE :	*medium (5–6)*
Knowledge-intensity of labour demand:	*high (7–8)*
Private activities in education:	*high (8–9)*

General (primary and secondary) education

Structure

Public (municipal) institutions remain predominant in general basic education in spite of the increased involvement of the private sector. There is a wide variety in general education supply. Spread of alternative teaching methods. Internal mobility within the system may in practice only be achieved with significant reliance on private resources to buy market-based private lessons.

Participation at upper secondary level

An increase in secondary school enrolment is also expected in this scenario (since labour market recognises knowledge). However due to the increased share of private finance resources demand will be especially strong for places in multi-purpose vocational secondary institutions that can not only qualify their students for higher education (with acceptable admission chances to a limited scope of studies, close to the original vocational specialisation), but also provide their students with skills that immediately increase their employment chances (although some brief further training is usually required before employment).

Teachers	Significant differentiation of the teaching profession: sharp discrepancy between those working in private and public schools. Efficient teacher employment in the private sector, over-employment (although at a decreased level than before) in the public sector.
Financing	This is the scenario where private financing in general education plays the greatest role; however, it remains rather limited even in this scenario since the main fields in education attracting private resources are vocational education, higher education and adult education and *not* general basic education. The budget remains the main source of financing general education. Foundation schools supported from private resources play a role primarily in the widening and diversification of the supply of general education.

Vocational education

Place within the structure	The significance of vocational secondary schools may increase at the expense of 3-year traditional vocational training courses, while the labour market needs for certain vocational qualifications may play a more pronounced role in determining the relevant education content and curricula. A wide variety of further education courses are offered; these play an important role in the acquisition of job-specific skills.
Division of functions between government and the market	A shorter, flexible training period (rather general and theoretical in its content) with predominantly public finance for wider groups of vocations. Decisive role of employers and on-the-job training in teaching specific job-related skills.
Financing	Demand for vocational education is represented on the one hand by people wishing to acquire vocational skills and qualifications and on the other by enterprises that have a stake in the training of present and/or future employees. Employer-borne private funding for vocational training is particularly significant in company retraining and further training courses. The government may promote employers' involvement in the training of the future labour force with tax incentives.

Higher education

Access and participation	Significant role of private financing even in public sector HE institutions. Due to tight individual budget constraints, the lack of preferential student loans and the high costs of training prevent student numbers from even showing a slight increase. However, participation rates may still exceed 30 per cent as smaller cohorts enter higher education owing to the demographic decline. A significant role is given to shorter post-secondary (semi-higher) education reflecting labour market demand in its structure and content. Higher prestige of practice-oriented 'college-level' (BA or BSc level) degrees. Degree subjects where student and/or labour market demand is weaker tend to be concentrated in the public sector.
Structure	The linear and dual models virtually co-exist in this scenario: the system is basically linear, leaving the door open for 'college-level' graduates wishing to proceed with their studies to achieve a 'university-level' degree; however, as practice-oriented college-level degrees tend to have high labour market value, there is little incentive for them to study further. Dominance of dual elements in some élite universities or degree subjects.
Network of institutions	In the public sector HE integration is fully implemented, while the number of private institutions grows significantly, as does the choice they provide.

Sectoral proportions	The role of private funding increases even in public HE institutions; the whole system of HE finance becomes more sector-independent. A dominance of private financing in those segments of HE that can offer a high individual rate of return and require relatively low costs (e.g. business training). An overall significant growth in the 'market share' of private institutions (about 20 per cent of HE students will study in the private sector).
Financing	Tuition fees are high and reflect the actual costs of training (both in the public and private sectors). Those wishing to study in higher education may rely on (relatively expensive) student loans at market interest rates, guaranteed only to a limited extent. The use of such loans tends to be limited and concentrated: these will be mostly taken out in certain narrow areas offering a high rate of return.

Summary

In the light of the characteristic features of the different scenarios it is hardly surprising that we consider the scenario that combines a highly knowledge-intensive economic development path with high resources allocated to education and a public-private mix in its financing (Scenario 1: Mixed financed knowledge-based HRD) as the most suitable for preventing the country from losing ground in competition. From the perspective of long-term economic development, the scenario based on human resource development with public (government) dominance (Scenario 2) cannot easily be dismissed either. On the basis of its social effects (on the equality of opportunities and social integration) and on the basis of some other factors (such as less significant quality differences in education) this scenario even may appear more attractive to some people. However, due to its greater level of individual freedom (choice) and higher average quality (which may, however, be spread out on a wider range) Scenario 1 seems to have an edge over Scenario 2, so the mixed-financing solution remains the better option. The decisive argument in favour of this scenario, however, is probably the fact that achieving a given level of human resources within the public dominance scenario would presumably require *more resources* overall than if we rely on the mixed financed knowledge-based HRD scenario as the institutional efficiency and average quality are both likely to be lower in the former one. It is through the realisation of this scenario that the chances of catching up with the developed world seem to be the highest. Furthermore, in our view, this scenario fits the current value system and realities of Hungarian society and politics much better than the public dominance one. We will therefore primarily focus on this scenario in the recommendation section.

Conclusions and Recommendations

General recommendations

The state of human resources and their path of development determine the long-term performance of a nation to a great extent. The role of education should not be passive or subservient; it should instead become a factor determining the growth path to best serve

the nation's development. To achieve future success we have to endeavour to develop an education system that creates a wide and high quality supply of human resources. This is an important pre-requisite for achieving and sustaining a knowledge-intensive growth path. Such a development track seems inconceivable without an increasing influx of foreign capital and a modern, high value-added production culture.

RECOMMENDATION

1. The combined ratio of public and private expenditure on education to the GDP – currently slightly below the OECD average – should be consistently higher than the OECD average over the next two decades. Within five years Hungary should be in the top third of OECD nations in terms of the ratio of their education spending to GDP and this position should be maintained. This requires immediate policy actions. In addition to an increase in the ratio of education spending to GDP, education expenditure should also be utilised more efficiently: new methods of management and financing should be introduced in the public sector to improve the efficiency of education institutions.

The introduction and full implementation of any substantial change within the education system is a lengthy process and it takes many years for changes to take full effect. It is therefore especially important to attain widespread public support to achieve the substantial changes detailed above.

RECOMMENDATION

2. There is a need for a nationally agreed and accepted value system in education policy and for a political culture in which significant and substantial changes do not occur within the education system without widespread support. These conditions would ensure that the development of the education system does not deviate from its path or spiral despite the changes in political power that are inevitable in a democracy.

In vocational training and higher education the private sector should play a far more active role (both in provision and in funding) in the future than it has to date. This shift towards higher private involvement in education will be caused by the permanent tightness of resources characteristic to the public sphere and also international tendencies. The state must create proper incentives to promote a higher level of involvement of private resources in this field. Care should also be taken to preserve equal opportunity and social mobility in the face of such changes.

Reforming teacher training is extremely important. *The information society of the 21st century will no longer require the same knowledge that teachers have today.* Completely different methodological skills and knowledge will be required to ensure that more emphasis is placed on the support for individual learning over traditional classroom teaching in the teacher's work.

RECOMMENDATION:

3. Teaching salaries must be gradually raised to a level approaching the incomes available with similar qualifications in the market sectors (competitive industries). There must be no delay to the start of this process and the achievement of a palpable reduction in the current high wage difference.

4. A quality and performance-sensitive higher education wage system must be introduced in order to lessen the gap between the wages of internationally competitive teachers and the customary wage level of such teachers in the EU. This could also reduce the dangerous effects of brain drain created by higher wages in foreign education, research institutes and in the market sectors.

5. The system of teacher training must be modernised (more flexible teachers are needed armed with an up-to-date, convertible knowledge).

The *quality of education* has been an acute problem in Hungarian education over the last decade. In addition to the declining student performance another significant problem is that there is an increasing quality gap between schools with regard to *settlements.* A consequence of the widening of the quality gap is a gradually rising proportion of school leavers who will have increasing difficulties in obtaining a job or a place in further or tertiary education.

RECOMMENDATION:

6. A system of indicators must be formulated to enable us to objectively assess teaching quality in public education. The creation of quality assurance and quality control procedures and systems must be encouraged.

7. The system of financing public (i.e. primary and secondary) education, namely the financial relationship between central and local governments, should be reformed to reduce the unjustifiably wide differences in quality and funding between schools (according to settlement size). Certain national quality standards must be universally applied within the school system.

Major higher education expansion under severe resource constraints has also made quality a sensitive issue in higher education. However, insistence on high quality standards in the traditional sense no longer seems a valid approach as it does not take the shift from élite to mass higher education into consideration. Instead of the old *numerus clausus* system (central allocation of state-funded study places by institutions and degree subjects) a quasi-market model, giving upper hand to student choice (based primarily on the value of qualifications on the labour market) and strengthening competition amongst HE institutions for students and the public funding they 'carry', would be a far more effective policy instrument in enforcing quality improvements.

RECOMMENDATION

In order to improve the quality of higher education and to construct a quality assurance system for higher education combining institutional and central measures:

- emphasis must be transferred from controlling inputs to the quality of output, the formulation and/or strengthening of requirements sensitive to the quality of

knowledge and degrees in higher education;

- the education process must be adapted to the altered distribution and quality of students entering higher education due to the ongoing major HE expansion. However, this must not lead to lower qualification requirements and degree standards.

Some specific recommendations for the sub-sectors of the education system

General education

Schools also have an important role with regard to socialisation besides their role in the transfer of knowledge. To accomplish the full range of educational functions greater emphasis must be given to the teaching of students with special needs or talents and to mental development (personality) in general. To enable the system to fulfil these functions at an adequate level, more public and private resources should be allocated to education and utilised in a more efficient way**.**

RECOMMENDATION:

8. Resources allocated to primary and secondary education must be increased to reflect actual needs.
9. A reasonable level of involvement of end-users in financing should be achieved (through privatisation and/or private financing of extra-curricular services), although not at the expense of equal opportunities.
10. Institutional interest in rational management should be strengthened.

The steady, rapid increase of the volume of scientific knowledge in various fields and the expansion of school tasks related to general education require a continuous updating process of school curricula and the material taught in schools. Primary and secondary education should remain general and give a good, broad foundation preparing students for recurrent education spells and repeated career changes.

Primary and secondary education should be organised into a unified 12-year process, yet it should also allow students to leave school at the age of 16 having acquired a general base of knowledge. The expansion of secondary education will keep less motivated students in school, which will necessitate some diversification in content and methodology. The development of content and structure must be linked to the methodological renewal of school education. The process of learning should be flexibly adjusted to the development of personality.

The acquisition of foreign languages is an extremely important task, requiring a comprehensive reform of language teaching at primary and secondary school level. School-based language instruction should enable every student to acquire communicational skills in a foreign language by the age of 16 at least. For secondary school graduates language competence in English and another foreign language must certainly be a basic requirement.

General education curricula should incorporate, besides the science and arts subjects, also some knowledge from practical fields important in everyday life (healthcare, psychology, environmental protection, technology, economics, law, public service, etc.).

RECOMMENDATION

11. A shift from old-fashioned teaching methods towards methods emphasising individual activity in learning (based on individual and group work and problem-solving) is required to develop creativity and independent thinking. Integrative solutions stimulating co-operation between students of different abilities etc. should replace the current teaching methods based on segregation.

12. Schools must endow their students with the new labour-market oriented skills demanded by workplaces (such as teamwork, co-operation, communication and presentation skills).

Vocational education within the school system

In accordance with international trends and labour market requirements, vocational differentiation and job-specific training should start no sooner than in the last two years of secondary education. With regard to its content, school-based vocational education should become of a more general and convertible nature: school types preparing their students for the labour market should concentrate on the general basics or foundation of a certain vocational field, while the transfer of practical, job-specific knowledge should take place mainly outside the school (on-the-job).

RECOMMENDATION

13. Whilst phasing out over-specialised job-specific training within school-based vocational education, a new system of job-specific practical training should be created outside the schools. As a first step of this process, the job-specific/practical part of vocational education must gradually be transferred to adult education programs.

14. In harmony with the new professional and licensing requirements, the links between out-of-school vocational training and school-based secondary and tertiary education must be formulated.

15. The spreading of new forms of vocational training and the creation of enterprise-level on-the-job training places in large companies should be promoted. Greater attention should be paid to the special training needs of small and medium enterprises. In order to construct a closer link between vocational education and the labour market, tax incentives should encourage businesses to participate directly in vocational training.

16. The labour market adaptation of new entrants to the labour market or those belonging to physically or mentally handicapped or to socially disadvantaged groups should be assisted by special measures.

Labour market needs and higher education

The higher education system will not be able to react to the challenges of its changing socio-economic environment unless a new regulatory environment is established, in which the participants of this special higher education 'market' become increasingly capable of adjusting their supply and demand autonomously to meet the requirements of economic development and the labour market.

RECOMMENDATION

17. A substantial increase in social resources allocated to higher education is necessary in order to create an internationally competitive higher education and achieve a knowledge-intensive development path.

18. The higher education system must offer for its students flexible 'exit' opportunities at various stages (degree levels) as well as greater internal mobility within the system. Universities and colleges should converge and the elements pointing towards a linear HE system should be strengthened to promote a gradual transformation of the current dual HE system.

19. Even within the state-funded sector of HE more leeway should be given to student choice reflecting the labour market situation, opportunities and individual training needs.

20. Higher education finance must be reformed to create proper interest in expanding and improving educational performance and adjusting training supply to student demand. An increase in the role of private resources in higher education finance would be welcome to strengthen cost awareness and enforce social rationality in individual enrolment/career decisions.

21. State intervention is needed to reduce information failures: the monitoring of the labour market situation of HE graduates entering the workforce, government assistance in the collection, processing and publication of related information and promotion of the publication of independent labour-market demand forecasts to enable individuals to make informed and responsible career decisions.

22. Support should be given to reasonable institutional efforts for integration to create a more rational higher education network and structure.

23. Institutional management should be strengthened, institutional budget constraints should become tighter to enforce economic rationality in the economic management of HE institutions.

Scientific research must play a significant role in higher education as it forms a vital pre-requisite to quality teaching in higher education. It goes without saying that there can be substantial differences between institutions with different goals, programmes and traditions in this field. Nevertheless, with adequate integration measures, regulatory and financial means, research may be stimulated in all institutions in accordance with local capacity. The research gap between institutions may also be narrowed with special incentives and research performance may become more consistent.

RECOMMENDATION

24. The importance of regular research activity must be further strengthened in teacher evaluation and higher education financing.

25. Quality-based financing in higher education should not preserve or strengthen the differences in research performance between the various institutes. It should rather bring dynamism into the system by creating proper motivation and a sound financial background to improve research performance and eliminate the drawbacks.

Adult education and lifelong learning

In order to foster lifelong learning, the role and function of the school must be defined properly in the future and as a parallel measure the appropriate 'venues' (hosts) must be found for the other functions of education. Venues, ways, forms and conditions must be created for recurrent or permanent education.

Vocational training is likely to become one of the most important fields in adult education. A new model should be formulated in which theoretical instruction is closely linked to a secondary or tertiary institution within the school system while practical training reflects workplace needs and is provided on-the-job. The role of adult education is also of crucial importance in the elimination of social inequalities and the facilitation of a direct and continuous adaptation to labour market needs. In this latter field special efforts must be made to exploit the potential inherent in modern communication techniques and media for education purposes to increase the importance of distance learning.

RECOMMENDATION

26. The practice-intensive stage of vocational training should be removed from the school-based secondary education and placed into adult education; job-specific vocational training should also be delegated to adult education in the longer run.

27. The acquisition and issuance of vocational licences/certificates for specific fields must be gradually transferred to adult education.

28. A coherent system of adult education institutions and specific government subsidies/grants for financing this should be established. This system must reflect foreseeable needs.

29. Suitable government measures (tax incentives, student loans provided to adult education students at favourable terms) must be used to strengthen voluntary employer and employee participation in the financing of adult education in addition to the reliance on labour market funds (public resources for the alleviation of labour market disequilibria).